

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

To:

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Date of mailing
(day/month/year)

26.08.2004

Applicant's or agent's file reference
234

IMPORTANT NOTIFICATION

International application No.
PCT/EP 03/09730

International filing date (day/month/year)
28.08.2003

Priority date (day/month/year)
28.08.2002

Applicant
UMICORE et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:



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PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 234	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/09730	International filing date (<i>day/month/year</i>) 28.08.2003	Priority date (<i>day/month/year</i>) 28.08.2002
International Patent Classification (IPC) or both national classification and IPC C23C2		
Applicant UMICORE et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 1 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 22.03.2004	Date of completion of this report 26.08.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Elsen, D Telephone No. +31 70 340-2005	



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/09730**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-8 as originally filed

Claims, Numbers

1-6 received on 02.07.2004 with letter of 02.07.2004

Drawings, Sheets

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	4
	No: Claims	1-3,5,6
Inventive step (IS)	Yes: Claims	
	No: Claims	1-6
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

D2: JP-A-4013856

D5: JP-A-05311370

D6: JP-A-06088191

D7: JP-A-05306445

D8: WO-A-0031311

2. Documents D5, D6, D7 and D8 were not cited in the first written opinion. Copies of the documents are appended hereto.

3. D5 discloses a continuous hot-dip galvannealing of steel by using a galvanizing bath cont. 0.05 to 0.2% Al and Cr in the range of 0.05 to 0.2% and subjecting the coated steel hereby produced to an alloying treatment under heating.
This narrow sub-range is very close to the sub-range of the present application and overlaps it.

Hence independent claims 1,5, and dependent claims 2,3, do not fulfill the criteria of Art. 33(2) PCT in respect of novelty.

4. D6 discloses the production of galvannealed steel containing no eta and zeta phases on the surface of the plating layer comprising the dipping of the steel into a molten zinc bath, containing < 0.2 wt.% Al and 0.1 to 1.0wt.% Cr and then heating the coated steel sheet.

This narrow sub-range is very close to the sub-range of the present application and overlaps it.

Hence independent claims 1,5 and dependent claims 2,3 do not fulfill the criteria of Art.33(2) PCT in respect of novelty.

5. D7 discloses the production of galvannealed steel comprising the dipping of the steel into a molten zinc bath, containing 0.05% to 0.2% Al and 0.05 to 0.2% Cr and then heating the coated steel.

The molten zinc bath contains e.g 0.3% Al and 0.1% Cr (see example 70, page 5).

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/09730

Hence independent claims 1,5 and dependent claims 2,3 do not fulfill the criteria of Art.33(2) PCT in respect of novelty.

6. D2 discloses the production of galvanized steel sheet comprising the dipping of the steel sheet into a molten zinc bath, containing 0.05-0.2% Al and 0.01-1.0% Cr and then heating the coated steel sheet.

This range is very close to and directly derivable of the narrow sub-range of the present application (see examples 3-11 on page 4).

Hence independent claims 1,5 and dependent claims 2,3 do not fulfill the criteria of Art.33(2) PCT in respect of novelty.

7. D8 discloses a galvanizing and galvannealing arrangement for processing a continuous steel strip being part of a continuous coating line comprising a bath of molten zinc and aluminium.

In the light of D5-D7 and D2 it would seem obvious to the skilled person to use a molten coating bath containing Al and Cr as stated in their claims.

Hence independent claim 4 does not involve an inventive step in the sense of Art.33(3)PCT.

8. The matter of independent claim 6 (continuous hot-dipping in a zinc bath containing 0.12 to 0.35 wt.% Al and 0.02 to 0.11 wt.% Cr of steel) is derivable directly and unambiguously from D5-D7 and D2.

Hence independent claim 6 does not fulfill the criterion of Art.33(2) PCT in respect of novelty.

03.07.2004

Claims

(82)

1. A bath for continuous hot-dip galvannealing steel with alloyed zinc, characterised in that it contains 0.12 to 0.35 wt.% Al and 0.02 to 0.11 wt.% Cr.
2. A bath according to claim 1, characterised in that it contains 0.135 to 0.29 wt.% Al and 0.05 to 0.10 wt.% Cr.
3. A bath according to claims 1 or 2, characterised in that it further only contains Zn and unavoidable impurities.
4. Process for coating steel on an individual continuous hot-dip line, comprising, in either order, the steps of:
 - galvanising a first quantity of steel by hot-dipping in a Zn alloy bath;
 - galvannealing a second quantity of steel by hot-dipping in the Zn alloy bath and by subjecting the coated steel hereby produced to a thermal treatment in an annealing furnace,
5. Process for continuously galvannealing dual-phase steel by hot-dipping in a Zn alloy bath, characterised in that the Zn alloy contains 0.12 to 0.35 wt.% Al and 0.02 to 0.11 wt.% Cr.
6. Process of increasing the annealing reactivity in a furnace used for annealing a product after hot-dipping in a Zn alloy bath, whereby 0.12 to 0.35 wt.% Al and 0.02 to 0.11 wt.% Cr is added to the Zn alloy bath.